Test 2 **Essential Maths 9C Units 3 & 4**

Calculators may be used

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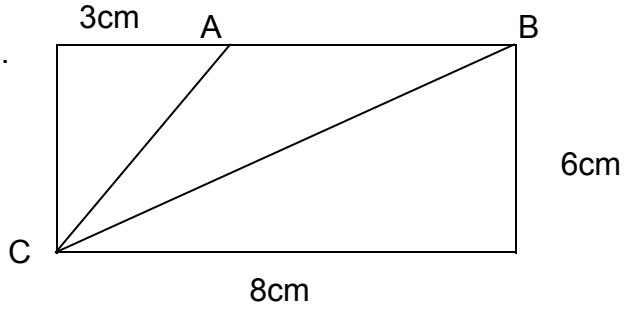
1. 

Find the area of triangle ABC, which is drawn inside a rectangle.

(2 marks)

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2. (a) Work out 8% of £9.50 (1 mark)

(b) Change $\frac{13}{25}$ to a percentage. (1 mark)

(c) Write the following in order of size, smallest first:

$\frac{4}{5}$, 0.755 , 85% (1 mark)

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3. Solve the equations

(a) $3x + 7 = x - 11$ (1 mark)

(b) $51 = 3(2 + 3x)$ (2 marks)

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4. Look at the numbers 11, 3, 6, 8, 4

(a) What is the range of the numbers? (1 mark)

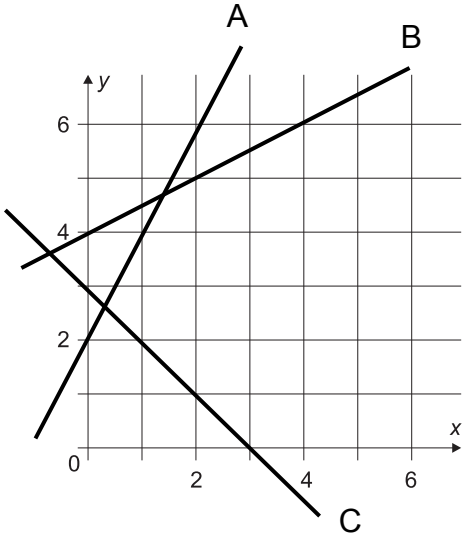
(b) What is the mean average of the numbers? (1 mark)

5. (a) Find the gradient and *y*-intercept of lines A, B and C.

(3 marks)

(b) Write down the equation of line A.

(1 mark)



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6. A floor measuring 4m by 3.5m is to be covered by square tiles measuring 50cm by 50cm.

The tiles are sold in packs of 10 for £12.95 per pack.

How much will it cost to buy the tiles for this floor?

(Note that you have to buy packs of 10 tiles) (4 marks)

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7. Look at the diagram.

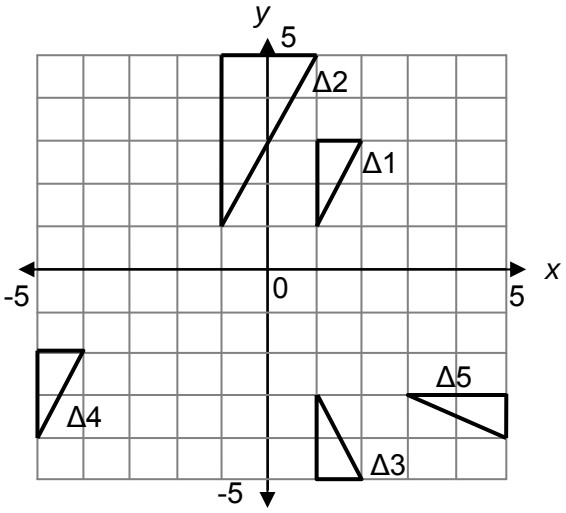
Describe fully the transformations

(a) Δ1 onto Δ2 (2 marks)

(b) Δ1 onto Δ3 (1 mark)

(c) Δ1 onto Δ4 (1 mark)

(d) Δ1 onto Δ5 (2 marks)



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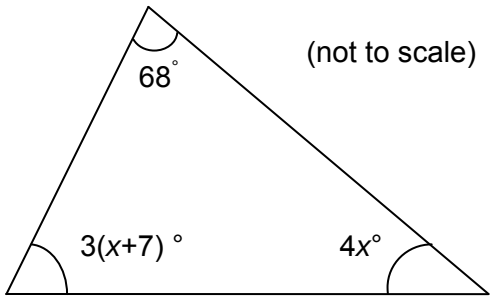
8. In the first two months of its life a kitten's weight increased from 800g to 1300g.

Calculate the percentage increase in its weight. (2 marks)

9. Find the largest angle in this triangle



You must show your working

(2 marks)

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10. The numbers are written in a repeating pattern.

The first base number is 1,

the second base number is 6,

the third base number is 11 and so on.

3	4		8	9		13	14		
2		5	7		10	12		15	
1			6			11			16

↑1st base number ↑2nd base number

(a) What is the 10th base number? (1 mark)

(b) What is the 400th base number? (2 marks)

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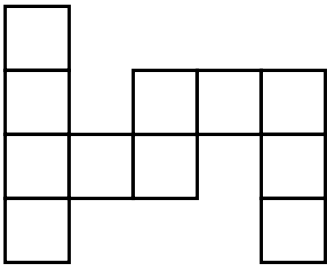
11. The area of this shape made of squares is 275cm^2

Work out the length of the perimeter of the shape.



(3 marks)

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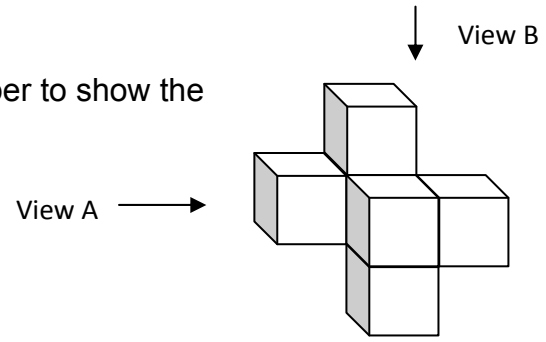
12. Sam bought a car for £3150. He fixed the car and sold it a price 15% higher.

At what price did he sell the car? (2 marks)

13. Draw 2 diagrams on squared paper to show the view of this object from A and B.



(2 marks)

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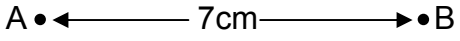
14. Draw points A and B 7cm apart.



Draw the locus of a point *X* which moves so that it is always equidistant (the same distance) from A and B. (2 marks)

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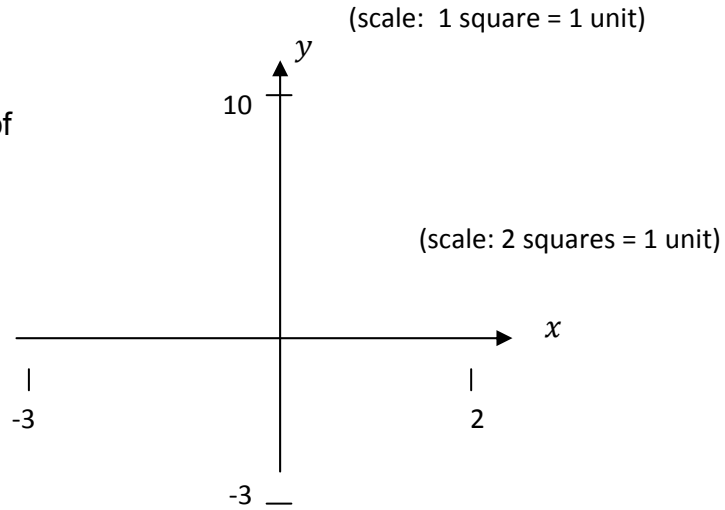
15. (a) Copy and complete the table for $y = x^2 + 3x$ (3 marks)

x		-3	-2	-1	0	1	2
x^2							4
$3x$							6
y							10

(b) On graph paper draw the graph of $y = x^2 + 3x$.
Use the scales shown

(2 marks)



(c) On your graph *estimate* the y coordinate of the point where $x = ½$. (1 mark)

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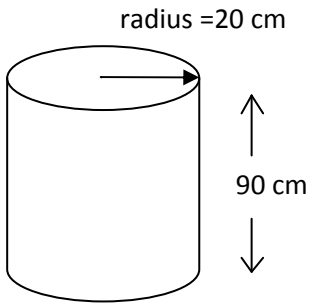
16. On a map of scale 1: 40 000 the distance between two bridges is 8cm.

Find the actual distance between the bridges in km. (2 marks)

17. Water is poured into the empty cylinder shown at a rate of $50cm^3$ per second.

How long will it take to fill the cylinder ?

Give your answer to the nearest second.



(3 marks)

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18. After an increase of 20%, the price of an i-Phone is £216.

Find the price before the increase. (3 marks)

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19. The stem and leaf diagram shows the marks of the pupils in a science test.

stem	leaf
3	2 6
4	0 3 4
5	7
6	3 6
7	8

(a) What was the range of the marks? (1 mark)

(b) What was the mean average mark? (2 marks)

(c) What was the median mark? (1 mark)

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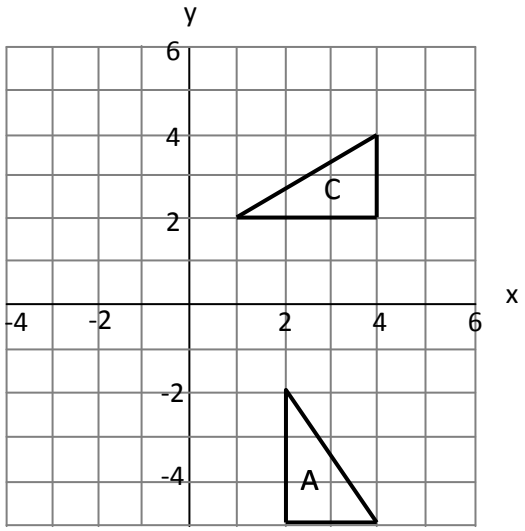
20. Copy the diagram on squared paper.

(a) ΔB is the reflection of ΔA in the *x* axis.

Draw ΔB. (1 mark)

(b) ΔC is the reflection of ΔB in the line $y = x$

Draw ΔC. (1 mark)

(c) Describe fully the single transformation which moves ΔA onto ΔC. (2 marks)